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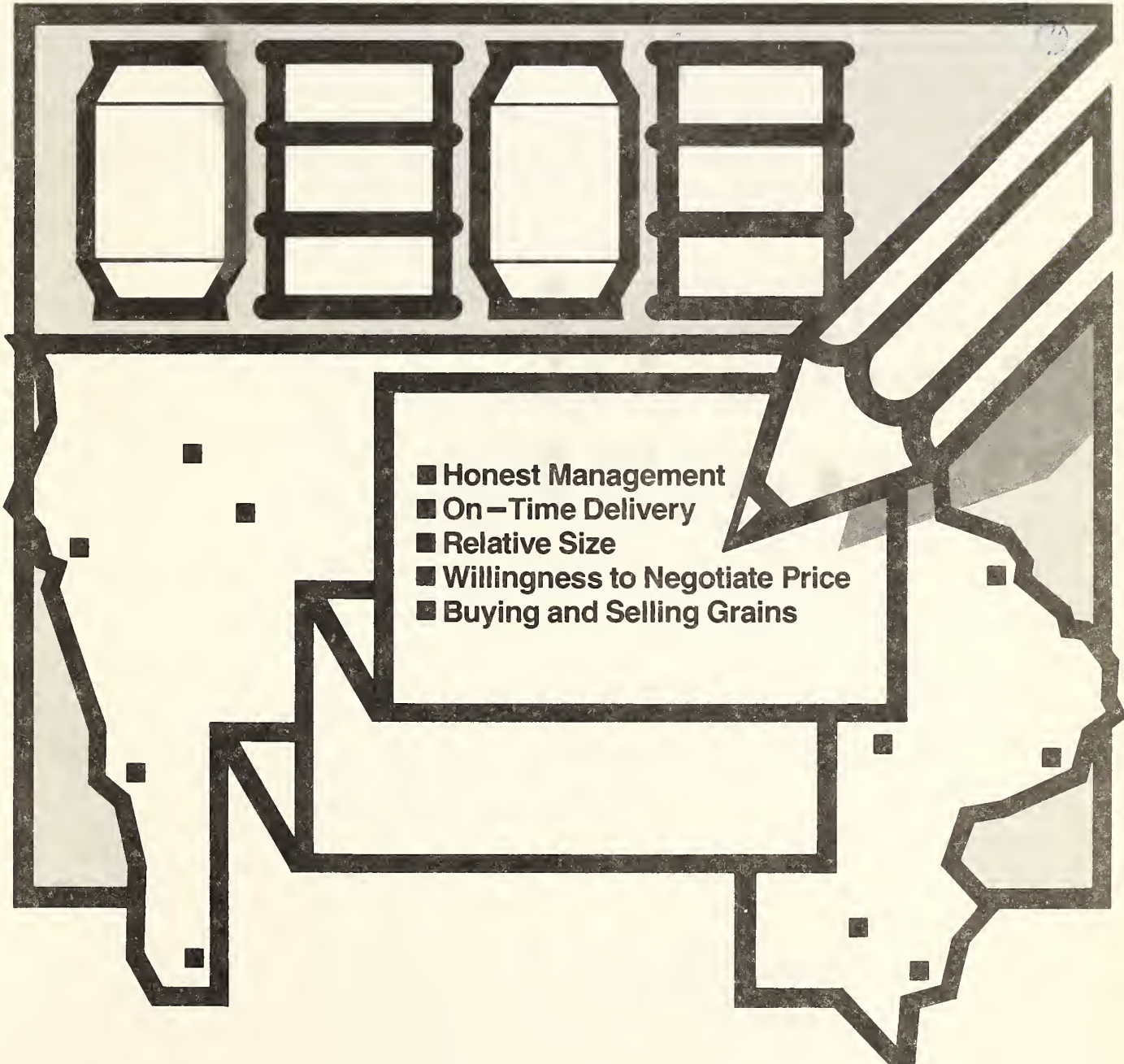
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Iowa Cooperative Fertilizer Retail Outlets

Farmers' Attitudes and Perceptions

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Abstract

Iowa Cooperative Fertilizer Retail Outlets: Farmers' Attitudes and Perceptions

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Based on a sample of Iowa farmers, attributes of fertilizer retail dealers are evaluated. Honest management, making deliveries on time, relative size, willingness to negotiate price, and marketing grain are the most important attributes affecting a farmer's decision to patronize an independent or cooperative dealer. Cooperative outlets are generally in a strong competitive position. The study also shows much salient information can be generated by using such statistical methods as segmentation analysis, factor analysis, and the choice model approach.

Key Words: Fertilizer, supply cooperative, farmers' perception, dealer attributes, segmentation analysis, factor analysis, choice model, logit

Preface

This report provides information to help management of cooperatives understand attitudes and preferences of farmers. It contains certain insights that might assist cooperatives in developing future marketing and membership programs. Specifically, this project's objectives are to:

- Determine current perceptions of Iowa farmers toward fertilizer supply cooperatives and indicate attributes associated with the perceptions;
- Identify, quantify, and analyze factors influencing farmers' choice in buying fertilizer from an independent or cooperative retail outlet; and
- Draw implications from the analysis on which farm supply cooperatives can act to improve operations and better serve farmer-members.

To achieve these objectives, a questionnaire survey of a panel of farmers by an agricultural research firm in Iowa was used as the basis for this analysis. Data is for the year ending June 30, 1981. The survey provides data to evaluate the relative influences of various retail outlets' attributes on farmers' decisions in purchasing fertilizer. Iowa was chosen, because it had the highest net fertilizer sales by cooperatives in the United States (\$448 million in 1981). It also contained a mixture of fertilizer retail outlets supplied by several regional cooperatives and by sources other than cooperatives. An estimated 330 cooperative retail outlets sell fertilizers in Iowa, accounting for 48 percent of total fertilizer sales in the State.

Sample results in this study should be projected carefully to the population of Iowa farmers. The sample is made up primarily of farmers who purchased commercial fertilizer during the study period, so smaller farmers who did not buy commercial fertilizer are underrepresented.

- 829 useful questionnaires were returned by farmers on the panel and by those on an additional mailing list, 269 from the eastern, 319 from the central, and 241 from the western part of the State. Characteristics were summarized, and some obvious patterns emerged.

- A segmentation analysis was performed to look for the traits of successive subgroups of farmers who preferred to purchase from an independent or a cooperative fertilizer outlet.

- Factors most influencing farmers' preference of an independent or a cooperative dealer were identified by using a choice model.

- Other significant findings involving interrelationships among farmers' characteristics and perceptions were identified during segmentation analysis, factor analysis, and choice model analysis. These interrelationships had bearings on the understanding of farmers' attitudes and preferences.

In this report, a cooperative outlet is a business entity owned by farmer-patrons, either affiliated with a regional supply cooperative or without affiliation; an independent outlet is a business not organized on a cooperative basis.

This report is edited for general distribution, based on Professor Gensch's contract report, "Analysis of Cooperative Retail Outlets in Iowa." The contract report may be referred to for more details on the analysis and the research methodology (limited copies are available on request from ACS). Donald Vogelsang had substantial inputs in planning and implementing the research project. His comments on the contract report, along with those of John Schmelzer and Paul Wilkins, facilitated the preparation of the current volume and are acknowledged gratefully.

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Highlights and Conclusions

Farmers generally think rather highly of fertilizer dealers they prefer to do business with, be they cooperative or independent.

Cooperative fertilizer outlets are strongly competitive. They tend to be larger, which farmers prefer. Larger farmers, older farmers, and those with higher levels of formal education and knowledge of soil fertility prefer to do business with cooperatives.

The higher the value and percentage of farmers' production sold to cooperatives and the larger the dollar volume cooperatives can handle, the higher the percentage of farm supplies such as fertilizer the farmer will purchase from cooperatives. These farmers have a favorable attitude toward cooperatives and are more involved in cooperative activities. Therefore, a significant key to future cooperative growth is to increase their marketing or buying capability.

Of farmers in the sample, 80.7 percent purchased anhydrous ammonia or dry bulk blends as their major fertilizer type. This group of farmers tended to purchase fertilizer from cooperatives. Farmers whose major fertilizer was liquid mixtures tended to favor independent outlets, perhaps due to the relative strength of independents in providing liquid mixtures and application services.

Dealer Attributes

The three attributes of a retail fertilizer outlet farmers rated as most important were: fertilizer supplied giving a good yield, making deliveries on time, and honest management. The three least important attributes were whether the dealer was: full service in selling feed and other supplies and marketing grain; cooperative or independent; and willing to negotiate price.

In rating their favorite independent retail outlet, farmers indicated three weak attributes: buying and selling grain, selling feed and other supplies, and willingness to negotiate price. The three attributes with low ratings for cooperatives were all price related: willingness to negotiate price, having the lowest price possible, and providing credit.

Thirty-seven percent of the respondents did not compare prices. Ninety-three percent indicated their area had more than two retail outlets from which to choose, so few customers were captive to a particular outlet from lack of competition.

Two hundred two farmers indicated they would buy 100 percent of their fertilizer from the cooperative and 113 indicated they would buy 100 percent from the independent dealer. The 755 farmers who indicated preferences said the probability they would buy their fertilizer from a cooperative retail outlet was 57.2 percent.

Farmers' Choices of Fertilizer Outlets

The attitude of farmers' spouses toward cooperatives is an indicator of the general social attitude influencing their actions. This indicator explains the most variation in farmers' preferences for the rated independent dealer. On average, the group of 503 farmers whose general attitudes toward cooperatives were favorable to very favorable had a probability of purchasing fertilizer from the independent outlet 32.4 percent of the time, compared with 63.7 percent for the group whose attitudes were neutral to very unfavorable. Among the 503 farmers, 210 sold more than 80 percent of their production to cooperatives and had a probability of purchasing fertilizer from the independent outlet 22 percent of the time. Further segmentation of the 210 farmers indicated 188 had anhydrous ammonia or dry bulk blends as their major fertilizer purchases. This last group of farmers were the most loyal patrons of cooperative outlets, with an average probability of purchasing from the independent dealer only 18.8 percent of the time.

The five dealer attributes most salient in determining whether the farmer will buy fertilizer from a cooperative or an independent retail outlet are, in order of importance: honest management, making deliveries on time, relative size, willingness to negotiate

price, and buying and selling grain. In choosing their favorite outlet between cooperatives and independents, 82 percent of farmers preferred the larger outlet.

Farmers who favored independent retail outlets considered willingness to negotiate price as important, while those favoring cooperative outlets considered buying and selling grain as important.

Fertilizer Purchase

Dollars spent on fertilizer by the sample farmers who purchased fertilizer averaged \$10,403 for the year ending June 30, 1981. Dry bulk blends were used by 82 percent of the sample farmers and were the most important type of fertilizer for 54 percent. Average number of dollars spent on it was higher than on any other type of fertilizer. Anhydrous ammonia often was purchased with dry bulk blends and was the most important fertilizer type for 26 percent of respondents. Liquid mixtures were the most important type of fertilizer for another 14 percent.

Only 11 percent of farmers applied all fertilizer with their own equipment, and 67 percent did not apply any fertilizer with their own equipment. The more anhydrous ammonia or dry bulk fertilizer purchased, the more likely the farmer's own equipment was used. The higher the quantity of liquid mixture purchased, the more likely the fertilizer was applied by the dealer.

Farmer's Involvement in Cooperatives

Eighty-eight percent of respondents indicated they belonged to at least one farm supply cooperative. However, 37 percent of farmers indicated their level of involvement was very low. The degree of involvement was related to the percent of crop sold to cooperatives.

Most farmers (76 percent) had a favorable attitude toward cooperatives, while only 5 percent had an unfavorable attitude. Favorable and unfavorable attitudes toward cooperatives seemed to be passed on from one generation to another. The larger the dollar value of a farm's final product, the more favorable the farmer's attitude toward cooperatives.

The number of cooperative memberships was correlated only weakly with farmers' involvement in cooperative management. Indicating a low level of involvement in their cooperatives were 282 farmers who said they would purchase fertilizer from independents most of the time. Number of cooperatives the farmer belonged to and level of involvement both were correlated strongly with percent of product farmers sold to cooperatives. Dollar volume sold also was related strongly to cooperative membership and involvement. Farmers most involved in cooperatives all had farm product sales exceeding \$100,000 per year.

Demographics

Twenty-two percent of farmers had attended college and 10 percent had attained a college degree. Forty-two percent of the sample indicated they had taken formal agriculture courses in school. Average age was 47, with 63 percent of the sample indicating they had more than 25 years of farm-operating experience. The most common form of farm ownership was single proprietorship (74 percent).

Older farmers had more favorable attitudes toward cooperatives, less formal education, and operated fewer acres with lower value of crops. Farmers who rated themselves high on knowledge of soil fertility and fertilizer practices tended to work more acres, have a larger dollar value of products, be more active in cooperatives, purchase fertilizer from cooperatives, compare prices more, and use their own equipment in applying fertilizer.

Iowa Cooperative Fertilizer Retail Outlets

Farmers' Attitudes and Perceptions

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COOPERATIVE FERTILIZER BUSINESS IN A CHANGING MARKET

Cooperatives are a major factor in marketing fertilizer, accounting for 37 percent of total sales in the United States in 1981. In terms of share of cooperative business, fertilizer is the second most important commodity sold by farm supply cooperatives. Cooperative fertilizer sales volume increased more than fourfold from \$657 million in 1970 to \$3.7 billion in 1981. An estimated 3,800 cooperatives supply fertilizers to farmers.

Like all forms of enterprise, farmer cooperatives are subject to changing economic and social conditions. While farm supply cooperatives are maturing in their operations, other suppliers also have become more progressive and aggressive in efforts to market fertilizer and have developed quality products and a complete range of related services. If cooperatives are to maintain a strong position in supplying fertilizer to members, they must understand farmers' perceptions and attitudes toward them.

FARMERS' ATTITUDES AND PERCEPTIONS

Fertilizer Purchases and Applications

Among farmers in the sample, 775 reported purchasing fertilizers during the year ending June 30, 1981. The remaining 54 respondents either did not purchase fertilizer or did not answer the question. Many farmers indicated they purchased more than one type of fertilizer. Most bought a combination of anhydrous ammonia and dry bulk blends. The other prevalent combination was liquid mixtures and dry bulk blends. The 775 farmers, on average, each spent \$10,403 for fertilizer during the year, of which \$6,119 was dry bulk blends.

In purchasing different types of fertilizer, a farmer might have used different considerations in selecting a retail outlet and different application procedures. Thus, in answering questions about fertilizer in general, a farmer might have multiple responses. For this reason, questions about fertilizer were narrowed to one particular purchase by asking farmers about their most important fertilizer purchase. For more than half (54 percent) of the 829 farmers, the most important fertilizer was dry bulk blends, although dry bulk blends were purchased by 82 percent of farmers. For 80.7 percent, the most important purchase was dry bulk blends or anhydrous ammonia. Another 14 percent of farmers listed liquid mixtures as their most important type of fertilizer.

Only 30 percent of the farmers used their own equipment in applying fertilizer. Eleven percent applied all fertilizer using their own equipment. Fifty-six percent used dealers' equipment for applying fertilizer. While 18.5 percent of the farmers had the dealer apply all fertilizer, only another 19.5 percent had the dealer apply some of it. Fifty-nine percent of farmers did not have a dealer make the application. Seven percent of farmers hired a custom applicator for some of their fertilizer, and 1.8 percent had a custom applicator apply all of it.

Price Comparison and Dealer Loyalty

Nine percent of farmers indicated they did considerable price shopping on their main fertilizer purchase, meaning they were price conscious. Because it takes time and effort, farmers most likely will not want to research prices, unless they can use the information to buy from the dealer

with the lowest price or to negotiate prices with their preferred dealer. One can assume little dealer loyalty exists among this group of respondents.

A second group of 428 farmers indicated they checked prices among 2 or 3 dealers. These farmers were concerned about price, but they still could be loyal to one dealer. They might be checking prices just to make sure their favorite dealer is competitive. Thirty-seven percent of respondents obtained prices from only one dealer or did not ask about prices at all. These farmers should be considered loyal to one dealer.

Ninety-three percent of respondents indicated they could choose from among three or more dealers, with more than half indicating five or more fertilizer dealers were in their area. Thus, farmers in the sample had considerable choice among fertilizer suppliers. A cooperative retail outlet has few captive customers and generally faces strong competition from numerous other retail outlets.

Importance Rating of Dealer Attributes

Farmers rated the importance of attributes when they selected a dealer for their most important fertilizer purchase (table 1). The importance ratings were on a five-point scale, where 1 was a very important attribute and 5 was not at all important. On average, the three most important dealer attributes were: fertilizer gives a good yield, makes deliveries on time, and provides honest management. Attributes that seemed to be unimportant to farmers were whether the dealer was: full service in selling feed and other farm supplies and buying and selling grain; cooperative or independent; and willing to negotiate price.

Table 1 -- Average importance rating of dealer attributes

Attribute	Average importance rating
1. Makes deliveries on time.....	1.42
2. Takes soil samples.....	2.10
3. Has fieldmen who visit the farm.....	2.93
4. Gives good and prompt fertilizer advice	1.90
5. Fills orders even during severe shortages	1.60
6. Is prompt and efficient if the farmer picks up.....	1.92
7. Has a good supply of application equipment.....	1.63
8. Uses good application equipment.....	1.58
9. Has competent operators of application equipment.....	1.96
10. Offers full line and all forms of fertilizer	2.01
11. Handles well-known fertilizer brand(s).....	2.47
12. Blends fertilizer to the farmer's needs	1.63
13. Offers many new products and services	2.41
14. Sells feed and other farm supplies.....	3.36
15. Buys and sells grain.....	3.60
16. Has lowest final price	2.23
17. Provides credit.....	2.68
18. Provides honest management.....	1.52
19. Is financially strong.....	1.75
20. Is a cooperative dealer	3.06
21. Is an independent dealer.....	3.66
22. Will negotiate price	3.03
23. Fertilizer gives a good yield	1.27

Because a five-point scale could produce ties among the importance of attributes, respondents specified the attributes they rated as first, second, and third in importance from the list of 23 attributes. The three attributes with the higher number of farmers rating them as most important were: makes deliveries on time, provides honest management, and fertilizer gives a good yield. Seven percent indicated low final price was the most important attribute.

Attributes of Independent Dealers Preferred by the Farmer

Farmers selected the independent dealer they would choose for their most important fertilizer purchase if they were limited to buying fertilizer only from independent retail suppliers.

The preferred independent supplier was generally not the largest dealer in the respective area in amount of fertilizer sold. Only 21 percent of the preferred independent dealers were perceived as being the largest in the respective area by the respondents.

The range in number of miles from a farm to the preferred independent fertilizer dealer was from 1 to 83 miles, with the average distance being 8.3 miles.

Farmers rated the independent fertilizer dealer on a 5-point scale on each of the 22 attributes in table 2. The scale ranges from a 1 for excellent to a 5 for poor.

More than a hundred farmers did not rate the independent. The principal reason given was these farmers had not dealt with the independent in many years and felt their knowledge was so limited they could not evaluate it fairly. Some farmers claimed no independent dealer served their area.

Table 2--Evaluations of independent fertilizer dealer preferred by the farmer if restricted to purchase from one

Attribute	Average rating
1. Makes deliveries on time.....	1.81
2. Takes soil samples.....	2.37
3. Has fieldmen who visit the farm.....	2.75
4. Gives good and prompt fertilizer advice.....	1.94
5. Fills orders even during severe shortages.....	2.20
6. Is prompt and efficient if the farmer picks up.....	1.92
7. Has a good supply of application equipment.....	1.82
8. Uses good application equipment.....	1.82
9. Has competent operators of application equipment.....	2.00
10. Offers full line and all forms of fertilizer.....	2.26
11. Handles well-known fertilizer brand(s).....	2.15
12. Blends fertilizer to the farmer's needs.....	1.98
13. Offers many new products and services.....	2.39
14. Sells feed and other farm supplies.....	3.12
15. Buys and sells grain.....	3.53
16. Has lowest final price.....	2.40
17. Provides credit.....	2.41
18. Provides honest management.....	1.80
19. Is financially strong.....	2.01
20. Overall evaluation of this dealer.....	1.93
21. Will negotiate price.....	2.82
22. Fertilizer gives a good yield.....	1.78

In addition, about 30 farmers did not fill out all 22 ratings; for some reason, they skipped rating the retailer on a number of attributes.

Farmers who rated their preferred independent retail outlet indicated high scores for the following attributes: makes deliveries on time, provides honest management, has a good supply of application equipment, uses good application equipment, supplies high-yielding fertilizer, and gives good and prompt advice. Farmers rated these attributes important also in choosing a dealer.

Attributes on which independents were perceived to be poor were: buys and sells grain; sells feed and other farm supplies; willingness to negotiate price; has fieldmen visit the farm; takes soil samples; and fills orders during shortages. Independents apparently are unwilling to negotiate price, and farmers are concerned whether independents will supply them during shortages. Twenty-six of the farmers who rated independent dealers felt the dealers they rated were so poor in a particular attribute they would not deal with the dealers, regardless of how well they performed on other attributes.

Attributes of Cooperative Dealers Preferred by the Farmer

Farmers identified the cooperative dealer they would prefer if they had to make their most important fertilizer purchase from one. The range of road miles from the farm to the cooperative dealer was from 1 to 72, with an average of 7.5 miles. These particular cooperatives tended to be larger than independent dealers. Half of those rating the size of the cooperative indicated it was the largest in the respective area.

Farmers rated the cooperative on the 22 attributes they had rated the independent retailer on, using the same five-point evaluation scale (table 3).

Table 3--Evaluations of the cooperative fertilizer dealer preferred by the farmer if restricted to purchase from one

Attribute	Average rating
1. Makes deliveries on time.....	1.92
2. Takes soil samples.....	2.10
3. Has fieldmen who visit the farm.....	2.27
4. Gives good and prompt fertilizer advice	1.97
5. Fills orders even during severe shortages	2.01
6. Is prompt and efficient if the farmer picks up.....	1.86
7. Has a good supply of application equipment.....	1.68
8. Uses good application equipment.....	1.75
9. Has competent operators of application equipment.....	2.05
10. Offers full line and all forms of fertilizer	1.76
11. Handles well-known fertilizer brand(s).....	1.84
12. Blends fertilizer to the farmer's needs	1.59
13. Offers many new products and services	1.96
14. Sells feed and other farm supplies.....	1.82
15. Buys and sells grain.....	2.03
16. Has lowest final price	2.41
17. Provides credit.....	2.37
18. Provides honest management.....	1.80
19. Is financially strong.....	1.73
20. Overall evaluation of this dealer	1.86
21. Will negotiate price	3.22
22. Fertilizer gives a good yield	1.73

In general, cooperative fertilizer dealers received high average ratings on the following attributes: (1) blends fertilizer to the farmer's needs, (2) has a good supply of application equipment, (3) fertilizer provides a good yield, and (4) is financially strong. Attributes that received lower ratings were: (1) willingness to negotiate price, (2) has lowest final price, (3) provides credit, and (4) has fieldmen visit the farm. Clearly price is farmers' main concern with cooperatives. Forty-nine farmers indicated the cooperative dealer rated so poorly in one attribute they would not do business with the cooperative, no matter how well it rated in other attributes. Price was the decisive attribute mentioned most often.

Farmers Preferred Cooperative Outlets

When asked to consider only the independent and the cooperative, farmers indicated the probability of making their major fertilizer purchase from the independent. The 755 farmers who answered the question indicated they would purchase from the independent 42.8 percent of the time. This amounts to saying the probability of purchasing from a cooperative was 57.2 percent. Two hundred two farmers indicated they always would make their major fertilizer purchase from a cooperative and 113 indicated they never would make their major fertilizer purchase from a cooperative.

Two measurement problems are associated with the straightforward approach of simply asking farmers all the questions using the term fertilizer. First, different types of fertilizer exist, and the relative importance of the attributes on which retail outlets are evaluated may vary from one type to another. For example, application equipment may be more important to the farmer using liquid mixtures than to one using dry bulk. Second, a high percent of farmers indicate they use more than one type of fertilizer. Thus, knowing the type of fertilizer the farmer has in mind when evaluating retail outlets is important.

For this reason, farmers were asked to compare their favorite independent retail outlet with their favorite cooperative retail outlet, only for their most important fertilizer purchase, defined as the type of fertilizer on which the farmer spent the largest number of dollars during the year under study.

Membership in Farm Cooperatives and Level of Involvement

Twelve percent of respondents indicated they did not belong to a supply cooperative. Twenty-five percent did not have membership in or sell any product to a marketing cooperative. Seventeen percent did not belong to a farm cooperative other than supply or marketing cooperatives. Therefore, it is clear that only a small percent of farmers did not belong to a cooperative.

Although only 12 percent of farmers did not belong to a farm supply cooperative, 37 percent said they had little involvement in cooperative's activities. Sixteen percent indicated they were active members. While 20 percent of respondents did not purchase fertilizer from a cooperative, 30 percent bought all their fertilizer from a cooperative. Seventy-two percent purchased fertilizer from a cooperative in 1980-81. Only 11 percent said they did not purchase farm supplies, other than fertilizers, from a cooperative. While not all members of farm supply cooperatives purchased fertilizer from cooperatives, the majority of members purchased some supplies from cooperatives.

Attitudes Toward Farm Cooperatives

An important aspect concerned how farmers and individuals who would strongly influence them felt about cooperatives. A five-point scale ranging from "very favorable" to "very unfavorable" was used to indicate the farmer's attitude toward cooperatives and the farmer's perceived attitude of spouse, adult children, parents, and partners in the farm. Seventy-six percent of farmers' attitudes were favorable, while only 5 percent were unfavorable. In general, farmers were less

sure of attitudes of those around them toward cooperatives, but where estimated, perceived them as rather similar to theirs, particularly for their spouses. In the later analysis, spouse's attitude toward cooperatives is used as a general indicator of the social factor influencing the farmer's preference.

Demographics

The majority (64 percent) of farmers were high school graduates, with 22 percent having attended college and 10 percent having at least 4 years of college. Forty-two percent of farmers indicated they had taken formal agriculture courses in school. Nineteen percent had taken formal agriculture courses in college, and 3 percent in graduate school.

Most respondents had considerable experience. The average age for farmers in this survey was 47, and 64 percent were between 45 and 65 years of age. Most farmers (86 percent) had been farming for at least 15 years; 63 percent had been farming for more than 25 years.

Ninety-one percent of farmers rated their knowledge of soils and fertilizers as average or better. Sixty-three percent were in the \$40,000 to \$200,000 range in value of products sold. Seventy-six percent were members of Farm Bureau. Other general farm organizations did not have a significant number of members among these farmers.

Farm Ownership and Organization

In terms of land ownership, 86 farmers (10.4 percent of the sample) owned no acreage. The range for those owning acres was from 10 to 1,300, with an average of 252 acres. Three hundred twenty farmers (or 38.6 percent) indicated they rented or leased some acreage. The range of acres rented or leased was from 10 to 3,000, and the average was 302 acres. Only 104 farmers (or 12.5 percent) rented or leased lands to others. The range was from 10 to 620 acres; the average acreage was 182. Five hundred thirty-seven farmers (65 percent) farmed more than 260 acres and 237 (29 percent) farmed 100 to 259 acres.

The majority of farmers (423, or 51 percent) considered their farm principally livestock and/or poultry. Listing their farm as principally grain or crops were 317 farmers (38.2 percent) and considering their farm both livestock and grain were 80 farmers (9.7 percent).

Almost three-quarters of farms (617, or 74 percent) were owned by a single proprietor, and 19 percent by partnerships. Corporations with some investment by the principal operator owned 48 farms, and corporations in which the principal operator did not have any investment owned 2.

ANALYSIS OF ATTITUDES AND PERCEPTIONS

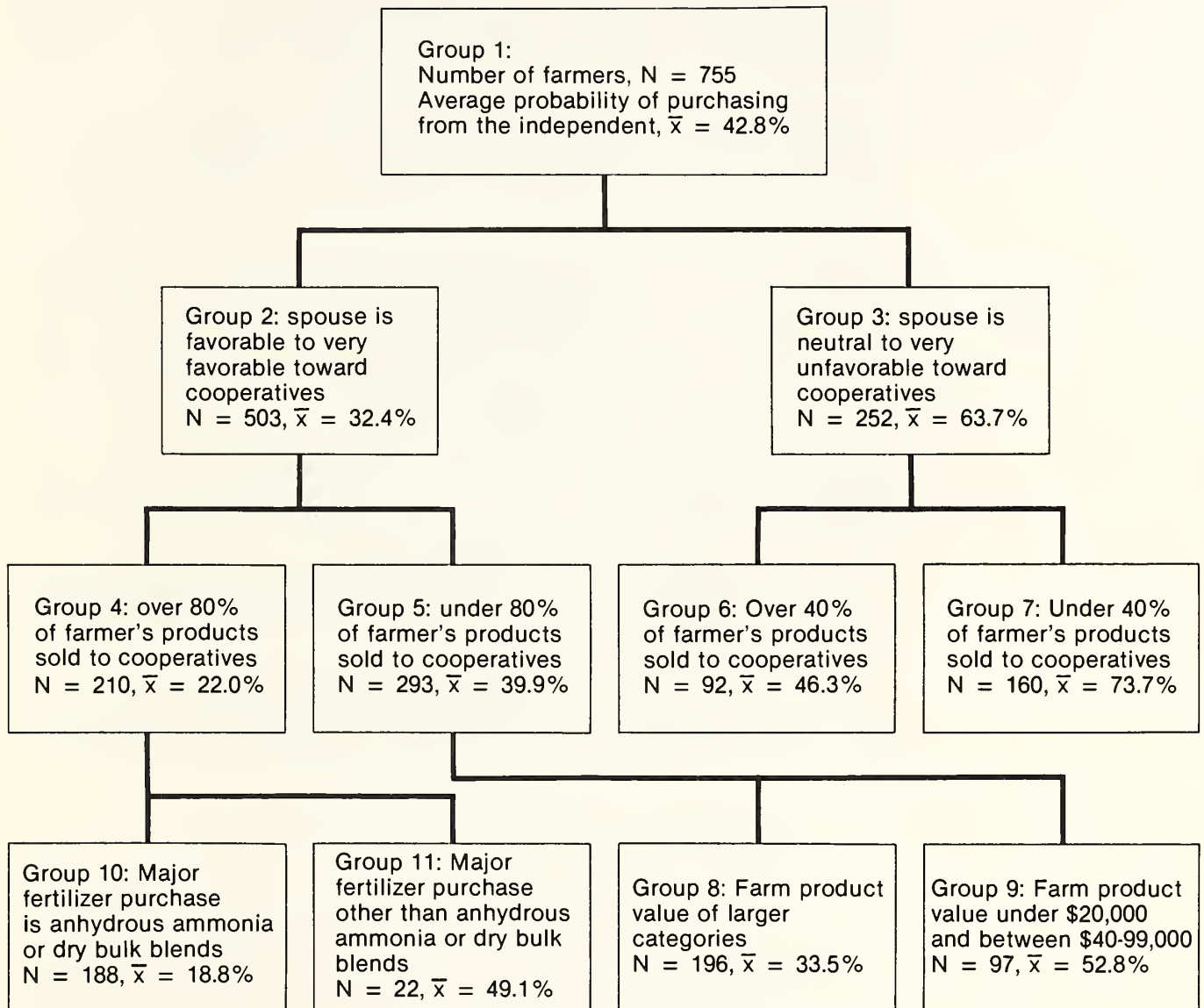
Survey data summarized in the previous section were rather simple and straightforward. Further analysis and synthesis yields more meaningful and useful information. This section concentrates on the 755 farmers who indicated dealer preferences.

Analysis of Farmers' Preferences for Fertilizer Outlets by Segmentation of the Sample

Farmers rated an independent outlet and a cooperative dealer if they were restricted to buy only from either. On average, 755 farmers indicated the probability of purchasing their major fertilizer from rated independent fertilizer outlets was 42.8 percent. This means a probability of 57.2 percent of purchasing from the rated cooperative. This subsection uses an analytical method called automatic interaction detector (A.I.D) technique to segment the sample for subgroups of farmers considerably above or below average in their probability of dealing with the rated independent retail outlet and to see which other variables had strong concomitant relationships with the preference.

Figure 1

Probability of Purchasing Major Fertilizer From the Rated Independent Dealer by Various Segments of the Sample Farmers



Segmentation of the groups are based on:

- Group 1: Spouse's attitude toward cooperatives.
- Group 2: Percentage of products sold to cooperatives.
- Group 3: Percentage of products sold to cooperatives.
- Group 4: Major type of fertilizer purchase.
- Group 5: Farm product value.

In figure 1, the total sample (group 1) consists of 755 farmers whose average probability of purchasing fertilizer from the rated independent retail outlet was 42.8 percent. The variable explains the most variation within the sample is the spouse's attitude toward cooperatives. The total sample is split into groups 2 and 3, based on this variable. Group 2 consists of farmers whose spouses' attitudes toward cooperatives ranged from favorable to very favorable, while group 3's spouses' attitudes ranged from neutral, to very unfavorable, to no answer provided. The average probability of buying from the rated independent for the 503 farmers in group 2 was 32.4, while the average probability of buying from the independent for the 252 in group 3 was almost double this at 63.7 percent.

In group 2, the 503 farmers who tended to favor the rated cooperative were split into groups 4 and 5, based on percent of total farm products sold to cooperatives. Two hundred ten farmers indicated they sold more than 80 percent of their products to cooperatives and tended to have an average probability of 22 percent in selecting the independent dealer (78 percent of the probability of selecting the cooperative).

Within group 4, the major type of fertilizer purchased strongly influenced the probability of purchasing fertilizer from a cooperative retail outlet. The majority of group 4 indicated anhydrous ammonia or dry bulk blends were their major type of fertilizer. The 188 farmers in group 10 were most likely to purchase from a cooperative. The average probability of purchasing from a cooperative was 81.2 percent for this group. Members of group 4 whose major fertilizer was other dry products, liquid mixtures, or other than the four types named had only a 51-percent average probability of purchasing from a cooperative.

Group 7 consisted of the 160 farmers who were most favorable to the independent retail outlet. Their spouses' attitudes toward cooperatives were neutral to very unfavorable, and they sold less than 40 percent of their total farm products to cooperatives.

The percent of total farm products sold to cooperatives strongly influenced the probability of purchasing fertilizer from the cooperative, and vice versa. Farmers who sold little or none of their final farm products to a cooperative were more likely to buy fertilizer and other supplies from the rated independent dealer.

The splitting of group 5 suggests even though those with a favorable attitude toward cooperatives sold less than 80 percent of their product to cooperatives, the larger the cash value of the crop and the larger the farm, the more likely they were to purchase their fertilizer from the cooperative retail outlet.

Dealer Attributes Influencing Farmers' Preferences for Fertilizer Outlets

Table 1 reported farmers' importance ratings of various dealer attributes. Tables 2 and 3 reported evaluations by the farmer on the independent dealer and the cooperative outlet favored if restricted to purchasing fertilizer only from either an independent or a cooperative outlet. Some attributes likely are intercorrelated. The correlated attributes can be grouped into sets, and the one most representative of each set selected to represent all the attributes in each set to reduce the complexity of the data and the further analysis. In statistical jargon, the method used to look for the correlations is called factor analysis, and resulting sets are called factors.

Table 4 shows the result of the analysis on the importance ratings of dealer attributes. Attributes are grouped into seven factors (not necessarily in the order of importance). Factor 1 indicates farmers who felt application equipment is an important consideration tended to rate all three attributes, 7, 8, and 9, high, and vice versa. Attribute 8 most represents the importance of application equipment, according to the statistical analysis.

Factor 2 indicates for some farmers, the cooperative's willingness to sell feeds and other supplies and buy grain strongly influenced their preference for cooperatives.

Statistical analysis indicates attributes under factor 3 are the more important attributes, and factor 4 attributes are relatively unimportant. Factor 5 is related to the promptness of advice and deliveries. Factor 6 is a price factor. The independent dealer is associated closely with farmers' price considerations. Factor 7 is associated with breadth of product line offered.

Factors associated with the evaluations of independent and cooperative dealers (tables 5 and 6) reveal very similar patterns. Statistical analysis shows the attribute, "Provides honest management," is clearly the most important factor. Similarly, the following attributes represent factors found in both tables: "Blends fertilizer to farmers' needs," "Uses good application equipment," "Buys and sells grain," "Will negotiate price," "Makes deliveries on time," and "Takes soil samples." These seven key attributes are used to represent the total 22 attributes in a "choice model" to determine the farmer's preference of cooperative vis-a-vis independent supply outlets.

Table 4--Grouping of dealer attributes using farmers' importance ratings

Factor One

- 7. Has a good supply of application equipment
- 8. Uses good application equipment
- 9. Has competent operators of application equipment

Factor Two

- 14. Sells feed and other farm supplies
- 15. Buys and sells grain
- 20. Is a cooperative dealer

Factor Three

- 18. Provides honest management
- 19. Is financially strong
- 23. Fertilizer gives a good yield

Factor Four

- 2. Takes soil samples
- 3. Has fieldmen who visit the farm

Factor Five

- 1. Makes deliveries on time
- 4. Gives good and prompt fertilizer advice
- 5. Fills orders even during severe shortages
- 6. Is prompt and efficient if the farmer picks up

Factor Six

- 16. Has lowest final price
- 17. Provides credit
- 21. Is an independent dealer
- 22. Will negotiate price

Factor Seven

- 10. Offers full-line and all forms of fertilizer
- 11. Handles well-known fertilizer brand(s)
- 12. Blends fertilizer to the farmer's needs
- 13. Offers many new products and services

Table 5--Grouping of attributes based on the farmer's evaluation of his preferred independent dealer if restricted to purchase from one

Factor One

- 18. Provides honest management
- 19. Is financially strong
- 20. Overall evaluation of this dealer
- 22. Fertilizer gives a good yield.

Factor Two

- 10. Offers full line and all forms of fertilizer
- 12. Blends fertilizer to the farmer's needs
- 13. Offers many new products and services

Factor Three

- 7. Has a good supply of application equipment
- 8. Uses good application equipment
- 9. Has competent operators of application equipment

Factor Four

- 3. Has fieldmen who visit the farm
- 2. Takes soil samples
- 4. Gives good and prompt fertilizer advice

Factor Five

- 14. Sells feed and other farm supplies
- 15. Buys and sells grain

Factor Six

- 1. Makes deliveries on time
- 5. Fills orders even during severe shortages
- 6. Is prompt and efficient if the farmer picks up

Factor Seven

- 16. Has lowest final price
 - 17. Provides credit
 - 21. Will negotiate price
-

A choice models¹ assumes the decision between alternatives is a function of the attributes of the alternatives. For this study, the assumption was the farmer's choice between the rated cooperative and independent outlets was a function of the attributes of the two outlets. In addition to the seven attributes from above, two more were added to the model. One was the road miles from the farm to the rated cooperative or independent fertilizer outlet. The other was the relative size of each outlet. These nine attributes were the explanatory variables in the choice model explaining the overall evaluation of the rated cooperative or independent fertilizer outlet by farmers.

¹A logit choice model in the present case.

Table 6--Grouping of attributes based on the farmer's evaluation of his preferred cooperative dealer if restricted to purchase from one.

Factor One

1. Makes deliveries on time
5. Fills orders even during severe shortages
6. Is prompt and efficient if the farmer picks up
20. Overall evaluation of this dealer

Factor Two

10. Offers full line and all forms of fertilizer
11. Handles well known fertilizer brand(s)
12. Blends fertilizer to the farmer's needs
13. Offers many new products and services

Factor Three

7. Has a good supply of application equipment
8. Uses good application equipment
9. Has competent operators of application equipment

Factor Four

3. Has fieldmen who visit the farm
2. Takes soil samples
4. Gives good and prompt fertilizer advice

Factor Five

18. Provides honest management
19. Is financially strong
20. Overall evaluation of this dealer

Factor Six

14. Sells feed and other farm supplies
15. Buys and sells grain

Factor Seven

16. Has lowest final price
 17. Provides credit
 21. Will negotiate price
-

As previously stated, a number of farmers indicated they had done all their business with only one retail outlet and did not feel they had adequate information to rate the other dealer. These farmers and those who did not give complete information were dropped from consideration. Also, farmers who gave both cooperative and independent outlets the same overall rating were dropped from the sample. The final sample size for the model was 400 farmers, with 217 preferring the rated cooperative outlet and 183 preferring the independent. If the cooperative outlet scored higher on overall evaluation than the independent, the farmer was said to prefer the cooperative outlet and vice versa. The average values of the nine attributes are presented in table 7 for the rated independent and cooperative outlets.

Average values indicate the rated cooperative outlet was perceived to be larger than the rated independent; more willing to buy grain; blend fertilizer to needs; and take soil samples; but less willing to negotiate price.

Table 7--Average values of the nine attributes rated by the 400 farmers

Attribute	The independent outlet	The cooperative outlet
Road miles	11.68	10.65
Relative size	2.16	1.66
Honest management.....	1.90	1.91
Blends fertilizer to needs.....	2.08	1.68
Uses good application equipment.....	1.91	1.82
Buys and sells grain.....	3.75	2.24
Will negotiate price.....	2.86	3.33
Makes deliveries on time.....	1.96	2.08
Takes soil samples.....	2.53	2.18

Table 8--Coefficients of the choice model in the order of their levels of significance

Attribute	Coefficients	Level of significance
Honest management.....	3.1082	**
Makes deliveries on time.....	1.3862	**
Relative size7510	**
Will negotiate price.....	.5974	**
Buys and sells grain.....	.3050	**
Blends fertilizer to needs.....	.3529	-
Uses good application equipment.....	.3138	-
Takes soil samples.....	.0758	-
Road miles	-.0049	-

** Statistically very significant (at .01 level).

- Not statistically significant.

Coefficients of the choice model are presented in table 8. The model is an extremely accurate fit, predicting 217 farmers favoring the cooperative outlet and 183 favoring the independent.

Coefficients of the choice model and their levels of statistical significance indicate the salience of each attribute, or how influential it is on the overall choice between the rated independent outlet and the rated cooperative outlet.

The two most critical attributes in making the choice of retail establishments were honesty of management and delivering on time. The relative size of the retail outlet was the next most significant factor. Eighty-two percent preferred a larger outlet. Remaining factors significant in influencing the choice were willingness to negotiate price and buying/selling grain. Those favoring the independent tended to place more emphasis on price negotiation and those favoring the cooperative on buying and selling grain.

Salience of relative size in decisionmaking was an interesting finding. This finding and the salience farmers who preferred the rated cooperative outlet placed on the ability of the outlet to buy grain suggested the possibility that the relative strength of the cooperative's ability to buy the final crop from farmers might have determined the farmers' patronage rather than the ability to sell them raw materials and services useful in producing the crop.

This implies that the key to growth for cooperatives is to increase marketing strength.

Price Comparison

A moderate amount of price comparison by farmers did not seem to make much difference in the probability of making their most important fertilizer purchase from the independent. However, when farmers compared prices of more than three dealers, they were more likely to purchase from the independent (table 9).

Positive correlations were found between the amount of price comparison made by farmers and how important they rated the attributes "has lowest final price," and "will negotiate price." A significant negative correlation existed between price comparison and total dollar amount spent on fertilizer. This tends to indicate the smaller purchaser of fertilizer is more price conscious.

Membership in Farm Cooperatives and Level of Involvement

The more farm supply cooperatives farmers belonged to, the lower their probability of dealing with the independent. Table 10 indicates 70 percent of farmers belonged to either one or two farm supply cooperatives. Those belonging to two or more had a significantly higher probability of purchasing major fertilizer from the cooperative. The same general pattern in table 10 also applies to the number of marketing cooperatives farmers belonged to. The greater the number of marketing cooperatives farmers belonged to, the greater the probability of purchasing their major fertilizer from the cooperative.

Only a slight positive correlation existed among the number of supply and marketing cooperatives a farmer belonged to. Farmers who belonged to several supply cooperatives did not necessarily belong to several marketing cooperatives and vice versa. With the vast majority of farmers (88 percent) belonging to at least one cooperative, trying to distinguish between token

Table 9--Amount of price comparisons and probability of buying major fertilizer from the independent dealer

Category	Farmers	Probability of buying from the independent
	<i>Number</i>	<i>Percent</i>
No answer.....	12	25
Asked price of one dealer only	189	39
Did not asked prices at all.....	101	40
Compared prices among 2 or 3 dealers	385	42
Compared prices among more than 3.....	68	51

Table 10--Number of farm supply cooperatives belonged to by farmers versus probability of purchasing major fertilizer from the independent dealer

Number of farm supply cooperatives farmer belonged to	Farmers	Probability of purchase from the independent
	<i>Number</i>	<i>Percent</i>
3	84	26.5
4	29	30.1
2	246	34.8
1	285	46.7
No answer	33	52.7
0	78	72.6

members and those deeply committed and involved in cooperatives becomes important. Traditionally, the method of doing this has been to count the number of cooperatives a farmer belongs to. The theory is the more cooperatives farmers belong to, the more involved and supportive they are of cooperatives.

In addition to asking farmers the traditional question on cooperative memberships, this study also asked them to indicate level of involvement in cooperatives, ranging from low (membership only) to extremely active (serving on two or more committees or elective positions). The correlation was weak between farmers' self-perceived level of involvement and how many of the various types of cooperatives they belonged to. This implies simply using the number and type of cooperatives to which farmers belong as a surrogate for the degree of involvement in cooperatives is misleading and incorrect. Therefore, this study uses farmers' rating of their own degree of involvement in cooperatives, rather than the number of cooperatives to which they belong to indicate level of involvement in cooperatives. Table 11 shows that the higher the involvement, the greater the probability of purchasing fertilizer from a cooperative.

A segmentation analysis also indicated the level of involvement was related closely to percent of fertilizer and other supplies bought from cooperatives and percent of farm products sold to cooperatives. The relationship is monotonic and almost linear. The higher the percent of business farmers did with the cooperative, the greater their involvement in serving on committees and boards of directors in cooperatives. The analysis further reveals the larger the value of farm production, the more farmers are involved in cooperatives (table 12).

Another interesting finding was the more knowledgeable farmers rated themselves in terms of soil fertility and fertilizer practices, the more involved they were in cooperatives.

Table 11--Level of involvement in farm supply cooperatives versus probability of purchasing major fertilizer from the independent dealer

Level of involvement	Farmers	Average probability of purchase from the independent
	<i>Number</i>	<i>Percent</i>
Extremely active	52	16.6
Very active.....	76	21.9
Moderately active	158	35.7
Somewhat active.....	138	40.0
Low (member only)	282	54.1
No answer.....	49	69.5

Table 12--Average level of involvement by value of products sold

Value category	Number	Average level of involvement
Under \$20,000	28	1.61
\$ 20,000 - \$ 39,999.....	68	1.97
\$ 40,000 - \$ 99,999.....	253	2.09
\$100,000 - \$199,999.....	243	2.36
\$200,000 - \$499,999.....	118	2.44
\$500,000 or more	35	2.51
No answer.....	10	2.90

Positive correlations existed between percent of products sold to the cooperative and probability of purchasing fertilizer from cooperatives (table 13). One method for cooperatives to increase sales of fertilizer and other supplies probably would be to increase marketing capability, so they could buy more of farmers' production.

Attitudes Toward Cooperatives

Attitudes toward cooperatives among the farmer, spouse, parents, adult children, and partners had strong positive correlations. The strongest of these correlations was between the farmer and the spouse. Obviously, the attitude toward cooperatives is influenced heavily by the family structure. Positive or negative attitudes toward cooperatives clearly are passed from one generation of farmers to the next.

Attitude toward cooperatives was correlated strongly with probability of selecting the cooperative instead of the independent retail outlet, as the segmentation split in figure 1 indicated. Table 14 further delineates this relationship.

A positive correlation existed between value of farm products and how favorable an attitude the parents and partners of the farmer had toward cooperatives. Thus, while farmers did not seem to join more cooperatives as the dollar value of their products increased, farmers with large dollar values of products tended to have parents and/or partners more positive in their attitudes toward cooperatives than those with small dollar values of products.

Table 13--Percentage of total farm products sold to cooperatives versus probability of purchase from the independent dealer

Percent sold	Farmers	Probability of purchase from the independent
	<i>Number</i>	<i>Percent</i>
100 percent	128	23.1
81 - 99 percent	122	28.1
No answer	13	36.5
61 - 80 percent	81	36.9
41 - 60 percent	67	40.5
1 - 20 percent	100	50.2
21 - 40 percent	62	52.9
None	182	63.1

Table 14--Spouse's attitude toward cooperatives versus probability of purchasing major fertilizer from the independent dealer

Spouse's attitude toward cooperatives	Farmers	Average probability of buying from the independent
	<i>Number</i>	<i>Percent</i>
Very favorable	210	22.7
Favorable	293	39.3
No answer	32	52.8
Don't know	24	60.6
Neutral	173	64.5
Very unfavorable	8	71.4
Unfavorable	15	78.7

Knowledge of Soil Fertility and Fertilizer Practices

A positive correlation existed between the highest level of education completed and taking of formal agriculture courses. However, the farmer's self-rating of knowledge about soil fertility and fertilizer practices was not related to level of formal education or whether they had taken formal agriculture courses in school. This self-perception of fertilizer knowledge is important, because it might influence strongly farmers' choice of retail outlets. Farmers who feel they are knowledgeable will likely put less emphasis on quality of advice provided by a fertilizer dealer in determining who to place fertilizer orders with.

This self-rating was also independent of age and the number of years the farmer has operated the farm. One possible explanation was that knowledge was obtained through both formal education and experience. Younger farmers had considerably more formal education, while older farmers had more experience. This same reasoning explains the lack of correlation between self-perception of fertilizer knowledge and level of formal education and number of agriculture courses taken.

A mild positive relationship exists between how knowledgeable farmers felt they were about soil fertility and fertilizer practices and probability of purchasing fertilizer from the cooperative. The more knowledgeable also:

- Tended to use their own equipment in applying fertilizer;
- Did not compare prices as much as the less knowledgeable;
- Were members of more cooperatives and more active in cooperatives; and
- Had larger value of products to sell and farmed more acres.

Fertilizer Purchases and Methods of Application

Correlations existed among the types of fertilizer purchased and the methods by which it was applied. As previously indicated, the vast majority of fertilizer purchased by the farmer was anhydrous ammonia or dry bulk blends. Farmers using larger quantities of these fertilizers tended to apply a large percent using their own equipment. The secondary method was using equipment supplied by the fertilizer dealer. However, for liquid mixtures, a strong positive correlation existed between dollar amount purchased and percent of fertilizer applied by the dealer. A negative correlation existed between dollar amount of liquid mixtures purchased and percent of fertilizer applied by farmers using dealers' equipment. For low dollar amounts of liquid mixtures, farmers tended to use dealers' equipment. For large dollar amounts, farmers tended to have the dealer apply all or most of the fertilizer. This is opposite from anhydrous ammonia and dry bulk fertilizer, where the greater the dollar amount, the less likely the farmer would have the dealer apply fertilizer.

Value of Products Sold

Farmers' age was a significant factor related to value of products sold. The larger values of products sold were by farmers in the 25-54 year-age range. Farmers younger than 25 and older than 54 tended to have smaller values of products sold.

Larger farmers tended to favor making their major fertilizer purchase from the rated cooperative (table 15).

Table 15--Value of products sold versus probability of purchasing major fertilizer from the independent dealer

Value of product	Farmers	Probability of purchase from the independent dealer
	<i>Number</i>	<i>Percent</i>
\$200,000 to \$499,999.....	118	32.7
\$500,000 or more	37	32.8
\$100,000 to \$199,999.....	234	39.1
\$ 40,000 to \$99,999.....	253	42.1
\$ 20,000 to \$39,999.....	74	43.6
No answer.....	14	54.1
Less than \$20,000.....	25	57.2

Other interesting relationships dealing with value of products sold were:

- The larger the product value, the less likely farmers would want custom application of fertilizer (they would either do it all themselves or have a dealer do much of the fertilizer application);
- A group of farmers with large product value did not deal with cooperatives at all;
- Farmers with large product value who favored doing business with cooperatives tended to buy almost all their fertilizer from them;
- Farmers with high product value tended to have more than a high school education;
- Farmers with high product value tended to produce livestock rather than grain; and
- Farmers with high product value tended to rate themselves as quite knowledgeable about soil fertility and fertilizer practices.

Size of Dealer

Relative size of the dealer (in terms of fertilizer sales) is an important variable influencing the farmers' evaluation of any dealer, whether cooperative or independent. A strong positive correlation exists between the size of the dealer and these attributes:

- Quality and availability of application equipment;
- Full line of fertilizer;
- Financial strength and honesty;
- Quality of fertilizer and advice; and
- Ability to buy farm products and sell other farm supplies.

Obviously because of these strong positive correlations, the larger the retail outlet, the more likely it is preferred over the competing retail outlets in its area.

Table 16--Major fertilizer versus probability of purchasing major fertilizer from the independent dealer

Major fertilizer	Farmers	Average probability of purchase from independent
	<i>Number</i>	<i>Percent</i>
1. Dry bulk blends	414	38.4
2. Anhydrous ammonia	203	39.0
3. No answer	13	41.6
4. Other	8	46.2
5. Other dry products.....	18	48.2
6. Liquid mixtures.....	99	64.5

Type of Major Fertilizer

The main fertilizer used (in terms of dollar costs) made a difference in the probability of purchasing from the cooperative. Farmers whose major fertilizer was either anhydrous ammonia or dry bulk blends were more likely to purchase fertilizer from the rated cooperative dealer than those whose main fertilizer purchase was other dry products, liquid mixtures, or others. This seems highly desirable from the cooperative's viewpoint, because as shown in table 16, 617 (82 percent) of farmers had anhydrous ammonia or dry bulk blends as their major fertilizer.

Farmers using liquid mixtures seemed to be somewhat atypical of remaining farmers, as they tended to have a statistically significant higher probability of purchasing from the rated independent dealer. Perhaps independent dealers had a significant advantage over cooperatives in providing liquid mixtures and related services.

A choice model was estimated for the subsample of farmers who listed anhydrous ammonia or dry bulk blends as their major fertilizer. Salient attributes were honest management, making deliveries on time, and relative size. Buying and selling grain was salient for those favoring the cooperative, and negotiating price was salient for those favoring the independent. Good application equipment was not a significant attribute for this group.

Real differences existed on the attributes most influential in choosing a retail outlet for those buying liquid mixtures. Making deliveries on time was the key attribute, followed closely by honest management. For farmers using liquid mixtures, the attributes "uses good fertilizer equipment" and "blends fertilizer to needs" became significant. As before, the attribute "will negotiate price" was significant, but the attributes "buys and sells grain" and "relative size" were not significant for this group. Therefore, liquid mixture users were more concerned with the dealer's equipment and timing of delivery than the previous subsample. Dealers' ability to blend liquid mixtures to farmers' needs and willingness to negotiate price also influenced choice of retail outlets.

Demographics

A slight positive correlation existed between educational level and probability of purchasing from the rated cooperative.

Whether farmers had taken formal agriculture courses did not seem to make a difference in their choice of dealer. The 321 farmers who had taken formal agriculture courses had an average probability of 41.2 percent of purchasing their major fertilizer from independent dealers, compared with 44.1 percent for the 419 farmers who had not taken formal courses.

The 585-Farm Bureau members had a higher average probability of 58.5 percent of purchasing from the rated cooperative, compared with the average probability of the 155 nonmembers, which was 52.1 percent.

Whether farmers raised livestock or grain did not make a significant difference in their preference for either fertilizer outlet. Most farms in the sample were organized as single proprietors. The 47 farms organized as corporations had an average probability of buying fertilizer from the cooperative 68 percent of the time, compared with an average probability of 56 percent for single proprietors and partnerships.

Farm acreage did not affect farmers' probabilities of purchasing from the cooperative.

Older farmers (more than 45 years) tended to have smaller annual product values, primarily grain rather than livestock farms, and less formal education than younger farmers. Older farmers had a more positive opinion of cooperatives, belonged to more of them, and were more active in cooperative management. They did not compare prices as much as younger farmers. Older farmers purchased a higher percent of fertilizer from cooperatives and sold a higher percent of product to cooperatives, perhaps because marketing cooperatives did a better job with grain than with livestock. Older farmers operated less acreage. Average age for the 218 farmers operating less than 200 acres was 51 years.

The sample of farmers was divided into two age groups: less than 45 years old and 45 years and older. A choice model was estimated for each group. Older farmers gave the highest priority to honest management over all other variables. This was the most important, albeit less salient, attribute for younger farmers. The attribute "makes deliveries on time" was salient for both groups. They both preferred larger retail outlets.

The sample of farmers was divided into groups of those operating less than 260 acres and those operating 260 acres or more. The choice model estimated indicates smaller farmers' emphasis on relative dealer size and heavy emphasis on price negotiation stood out most from the general patterns.

Larger farmers strongly emphasized honest management and delivering on time. The next most important attribute was buying grain. Dealer size was significant but less influential than ability to buy grain. Negotiating price was not a significant attribute for larger farmers.

If cooperatives are interested in attracting more business from large-scale farmers, they should emphasize and increase their ability to buy their final products.

**U.S. Department of Agriculture
Agricultural Cooperative Service**

Agricultural Cooperative Service provides research, management, and educational assistance to cooperatives to strengthen the economic position of farmers and other rural residents. It works directly with cooperative leaders and Federal and State agencies to improve organization, leadership, and operation of cooperatives and to give guidance to further development.

The agency (1) helps farmers and other rural residents obtain supplies and services at lower costs and to get better prices for products they sell; (2) advises rural residents on developing existing resources through cooperative action to enhance rural living; (3) helps cooperatives improve services and operating efficiency; (4) informs members, directors, employees, and the public on how cooperatives work and benefit their members and their communities; and (5) encourages international cooperative programs.

The agency publishes research and educational materials, and issues *Farmer Cooperatives*. All programs and activities are conducted on a nondiscriminatory basis, without regard to race, creed, color, sex, or national origin.